

**Amendments to the Claims:**

The following listing of claims will replace all prior versions, and listings, of claims in the application:

Canceled Claims 1-14.

15. (New) A polishing pad used for polishing a substrate, wherein grooves having a radial pattern are formed on a surface of the polishing pad, and an average value of the total volumes of all the groove parts existing immediately below the substrate in the grooves (an average value of the sum totals of the groove volumes in parts immediately below the substrate) is 0.06 to 0.23 when represented by [the average value of the sum totals of the groove volumes in parts immediately below the substrate (mm<sup>3</sup>) / area of the substrate (mm<sup>2</sup>)].

16. (New) A polishing pad used for polishing a substrate, wherein grooves having a radial pattern are formed on a surface of the polishing pad, and the grooves are formed so that a groove depth of the groove parts located nearer to the center than the substrate is shallower than a groove depth of the groove parts existing immediately below the substrate, and an intersection point where the grooves overlap each other at the central part of the radial pattern of the grooves does not exist immediately below the substrate.

17. (New) The polishing pad according to Claim 15, wherein the grooves have a constant groove width and are formed so that angles between the grooves are more than the values obtained by the mathematical formula 1 as follows.  
(Mathematical formula 1)

An angle between the grooves =  $2 \times \sin^{-1} (\text{a width of the grooves} / (2 \times (\text{a distance from the center of the polishing pad to the center of the substrate} - \text{a radius of the substrate})))$

18. (New) The polishing pad according to Claim 16, wherein the grooves have a constant groove width and are formed so that angles between the grooves are more than the values obtained by the mathematical formula 1 as follows.

(Mathematical formula 1)

An angle between the grooves =  $2 \times \sin^{-1} (\text{a width of the grooves} / (2 \times (\text{a distance from the center of the polishing pad to the center of the substrate} - \text{a radius of the substrate})))$

19 (New) The polishing pad according to Claim 15, wherein the grooves have groove widths of 2.0 mm or less.

20. (New) The polishing pad according to Claim 16, wherein the grooves have groove widths of 2.0 mm or less.

21. (New) The polishing pad according to Claim 15, wherein the polishing pad is a nonwoven type or a suede type.

22. (New) The polishing pad according to Claim 16, wherein the polishing pad is a nonwoven type or a suede type.

23. (New) A method for producing a substrate, comprising a step of polishing a substrate by using the polishing pad according to Claim 15.

24. (New) A method for producing a substrate, comprising a step of polishing a substrate by using the polishing pad according to Claim 16.

25. (New) The method for producing a substrate according to Claim 23, wherein as the substrate to be polished, a silicon single crystal wafer or an SOI wafer is used.

26. (New) The method for producing a substrate according to Claim 24, wherein as the substrate to be polished, a silicon single crystal wafer or an SOI wafer is used.

27. (New) A method for processing a polishing pad which is a method for forming grooves on a surface of a polishing pad used for polishing a substrate, comprising forming the grooves so as to have a radial pattern, and at this time forming the grooves so that an average value of the total volumes of all the groove parts existing immediately below the substrate in the grooves (an average value of the sum totals of the groove volumes in parts immediately below the substrate) complies with a relation of 0.06 to 0.23 when represented by [the average value of the sum totals of the groove volumes in parts immediately below the substrate (mm<sup>3</sup>) / area of the substrate (mm<sup>2</sup>)].

28. (New) A method for processing a polishing pad which is a method for forming grooves on a surface of a polishing pad used for polishing a substrate, comprising forming the grooves so as to have a radial pattern, and at this time forming the grooves so that a groove depth of the groove parts located nearer to the center than the substrate is shallower than a groove depth of the groove parts existing immediately below the substrate and an intersection point where the grooves overlap each other at the central part of the radial pattern of the grooves does not exist immediately below the substrate.

29. (New) The method for processing a polishing pad according to Claim 27, wherein the grooves are formed so that angles between the grooves are more than values obtained by the mathematical formula 1 as follows.

(Mathematical formula 1)

An angle between the grooves =  $2 \times \sin^{-1} (\text{a width of the grooves} / (2 \times (\text{a distance from the center of the polishing pad to the center of the substrate} - \text{a radius of the substrate})))$

30. (New) The method for processing a polishing pad according to Claim 28, wherein the grooves are formed so that angles between the grooves are more than values obtained by the mathematical formula 1 as follows.

(Mathematical formula 1)

An angle between the grooves =  $2 \times \sin^{-1} (\text{a width of the grooves} / (2 \times (\text{a distance from the center of the polishing pad to the center of the substrate} - \text{a radius of the substrate})))$

31. (New) The method for processing a polishing pad according to Claim 27, wherein the grooves are formed so as to have groove widths of 2.0 mm or less.

32. (New) The method for processing a polishing pad according to Claim 28, wherein the grooves are formed so as to have groove widths of 2.0 mm or less.

33. (New) The method for processing a polishing pad according to Claim 27, wherein the polishing pad is a nonwoven type or a suede type.

34. (New) The method for processing a polishing pad according to Claim 28, wherein the polishing pad is a nonwoven type or a suede type.

35. (New) A method for producing a substrate, comprising a step of polishing a substrate by using the polishing pad processed by the method according to Claim 27.

36. (New) A method for producing a substrate, comprising a step of polishing a substrate by using the polishing pad processed by the method according to Claim 28.

37. (New) The method for producing a substrate according to Claim 35, wherein as the substrate to be polished, a silicon single crystal wafer or an SOI wafer is used.

38. (New) The method for producing a substrate according to Claim 36, wherein as the substrate to be polished, a silicon single crystal wafer or an SOI wafer is used.